

Ornithological observations around Tunis, Tunisia

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Observations ornithologiques aux environs de Tunis, Tunisie. Les zones humides aux environs de Tunis constituent d'importants lieux d'hivernage et de passage pour de nombreux oiseaux. Lors de deux séjours en Tunisie passés en 2003–05 et 2012–14, 173 espèces ont été observées, comprenant deux espèces considérées comme Menacées, deux comme Vulnérables et six comme Quasiment menacées, principalement à la Sebkheth Ariana, un lac salé de la banlieue nord de Tunis, ainsi qu'à d'autres sites au nord-est de la Tunisie. De plus, les historiques de vie de Flamants roses *Phoenicopterus roseus* bagués vus aux environs de Tunis sont présentés.

Summary. The wetlands around Tunis represent important wintering and passage stopover areas for many birds. During two stays in Tunisia in 2003–05 and 2012–14, 173 species were observed, including two considered globally Endangered, two Vulnerable and six Near Threatened, mainly at Sebkheth Ariana, a saline lake in the northern suburb of Tunis, and other sites in north-east Tunisia. In addition, details on ringed Greater Flamingo *Phoenicopterus roseus* observed around Tunis are presented.

While resident in Tunisia in 2003–05 and 2012–14 and, additionally, during short stays in 2005–12, I made c.200 ornithological visits to the Tunis area, mainly to wetlands, of which two are recognised as Important Bird Areas

(IBAs; Amari & Azafzaf 2001; Fig. 1). These easily accessible sites are threatened by sprawling urbanisation. Given the rapid changes caused by their environmental degradation, there is a need to monitoring their bird populations closely,

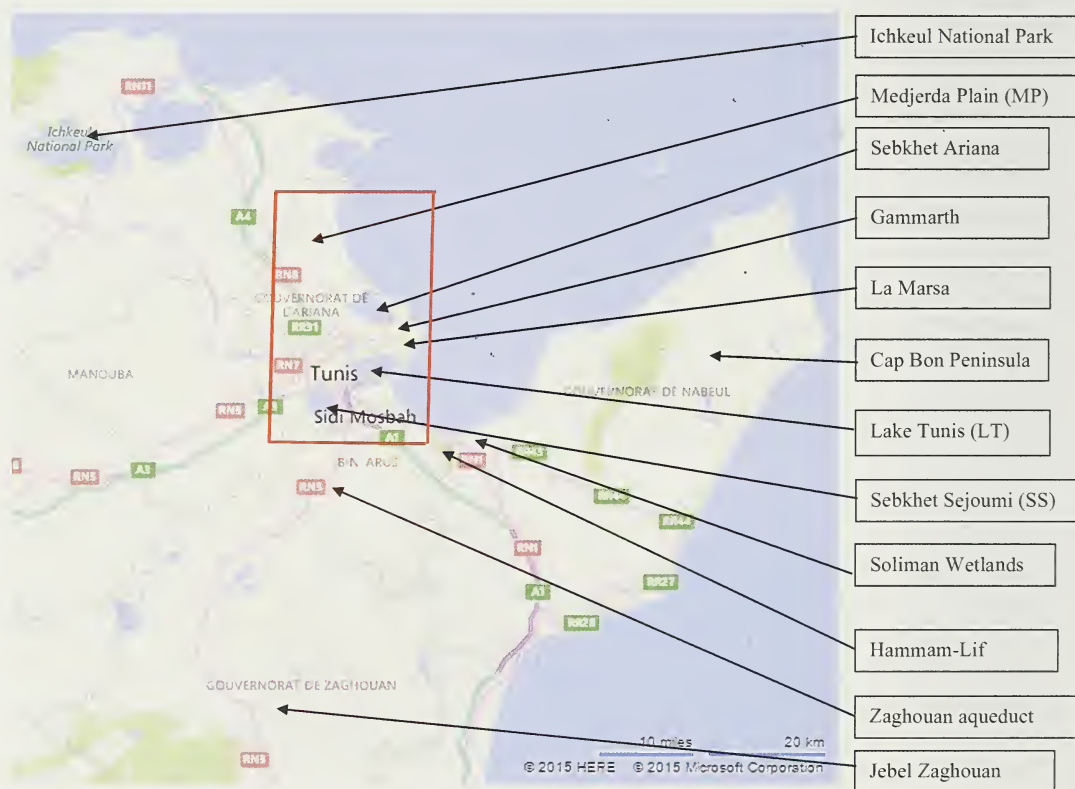


Figure 1. Location of visited sites around Tunis (study area framed in red).

Situation des sites visités dans les environs de Tunis (zone d'étude encadrée en rouge).



Figure 2. View of Sebkheth Ariana (background) and flooded mudflats (foreground), Tunisia, January 2013 (B. Boedts)
 Vue sur la Sebkheth Ariana (arrière-plan) et les vasières inondées (avant-plan), Tunisie, janvier 2013 (B. Boedts)

especially those species considered to be declining. The records presented here contribute to this.

Study area

Sebkheth Ariana (SA), located in the northern suburb of Tunis (36°52'N 10°11'E), was the site most regularly visited between March 2003 and July 2005 (30 visits in 29 months) and sometimes several times a week, except in July–August, from September 2012 to June 2014 (85 visits in 22 months). The term *sebkheth* refers to a depression of salt-impregnated soil devoid of vegetation (Isenmann *et al.* 2005). Sebkheth Ariana, which is c.5,000 ha in extent (Wikipedia 2015), dries up partially in summer, from May (Fig. 2). Bird counts were generally made from the north, near the coast, an area which is gradually being acquired by holiday resorts. Additional observations were made from the south, where in winter birds are hunted from a hide.

The other wetlands visited include Lake Tunis (LT), a shallow coastal lagoon of c.4,000 ha located between the city and the Gulf of Tunis, and its environs (IBA TN009; 20 visits). In 2013–14, nine visits were also made to Sebkheth Sejoumi (SS), a shallow basin of c.3,900 ha near the centre of Tunis (IBA TN010).

Less regular visits were made to the cultivated fields and coastal area (estuary, lagoons, marshes, beaches, steppes) of the Medjerda Plain (MP), the maritime pine forests at the tourist area of Gammarth, north of La Marsa, and, in 2012–14,

to the fields and thickets near the American cemetery at La Marsa (where small birds are trapped in spring and partridges hunted in winter).

Additionally, I present some noteworthy observations from sites not treated here as the study area proper. It includes the city of Tunis; to the south-east: the road to Hammam-Lif and the Soliman wetlands (IBA TN011; four visits in 2003–13); to the east: the Cap Bon peninsula including Jebel el Haouaria (IBA TN004; six visits in 2003–13); to the south-west: the Zaghouan aqueduct (IBA TN013; six visits in 2004–13) and Jebel Zaghouan (three visits in 2011–13); and to the north-west: Ichkeul National Park, Governorate of Bizerte (IBA TN002; eight visits in 2003–13).

Climate is typically Mediterranean with mild, wet autumns/winters (September to February) and hot dry springs/summers (March to August).

Results

In total, 173 bird species were observed (see Appendix 1). Of these, two are classified as Endangered (White-headed Duck *Oxyura leucocephala*, Egyptian Vulture *Neophron percnopterus*), two as Vulnerable (Yelkouan Shearwater *Puffinus yelkouan*, Marbled Teal *Marmaronetta angustirostris*) and six as Near Threatened (Ferruginous Duck *Aythya nyroca*, Red-footed Falcon *Falco vespertinus*, Black-tailed Godwit *Limosa limosa*, Eurasian Curlew *Numenius*

arquata, Audouin's Gull *Larus audouinii*, European Roller *Coracias garrulus*).

At wetlands around Tunis, wintering was noted for all of the four recorded grebe species, large numbers of Greater Flamingos *Phoenicopterus roseus*, 70% of the 30 shorebirds, almost all 14 ducks (in large numbers) and 50% of the 14 gulls and terns. Tens of thousands of shorebirds regularly stopover on their north- and southbound migrations. In green spaces near residential areas north of the city and in the steppes of the Medjerda Plain, 28% of the 61 passerines recorded were winter visitors. In spring, at least five raptor species were seen singly or in groups en route to Cap Bon, from where they cross the Mediterranean.

Notes on selected species

The following notes provide details on species of conservation concern as well as new or at least remarkable observations regarding extension of the known range, unusual dates or presence, interesting breeding data or noteworthy numbers. Sequence and taxonomy follow Isenmann *et al.* (2015) with a few amendments. IUCN conservation status (BirdLife International 2015): EN = Endangered, VU = Vulnerable, NT = Near Threatened.

Red-necked Grebe *Podiceps grisegena*

SA: just three on 17 January 2004 although Azafzaf *et al.* (2015) mention 'some observations in small numbers during 2003–2004 winter at Sebkheth Ariana (B. Boedts) adding to the only four records made in Tunisia in 1970–72'.

Black-necked Grebe *Podiceps nigricollis*

SA: large gatherings in late winter, e.g. >400 on 20–23 March 2013 and 850 on 20 March 2014. In small numbers elsewhere, e.g. LT: 15 on 3–5 December 2013 and ten on 27 December 2013. Previously more numerous, with several thousand recorded in the 1970s and 1980s at LT (Amari & Azafzaf 2001).

White Stork *Ciconia ciconia*

SS: one record of >100 passing on 27 April 2013. MP: breeds in small numbers in May–June on platforms atop power poles, with three nests occupied on 5 June 2013. Winter records: three near a garbage discharge on 13 January 2014 and

five at Soliman on 30 December 2003. Some occasionally winter in Tunisia, but such records perhaps refer to early migrants (Isenmann *et al.* 2005).

Greater Flamingo *Phoenicopterus roseus*

SA and SS: large gatherings in winter with >10,000 per site and occasionally more (e.g. 17,000 at SA in January 2013: Azafzaf *et al.* 2015), sometimes also later in the year (>15,000 at SS on 22 June 2013). Also present at LT in winter in smaller numbers. Can be absent in late summer, when SA almost completely dries out, although some apparently very weak individuals occasionally remain. Ringed birds were regularly observed; 24 rings were read by telescope at SA (2005, 2014) and SS (2014). Ringing data (Appendix 2) revealed that about half of these originated from France and were generally first- or second-winter birds. Four had been recorded at another Tunisian wetland a few months previously. There is a passage of flamingos between Tunisian lakes including almost daily exchanges between SA, LT and SS. Many remain for several months in the country before returning to breeding sites in Europe. Two, aged 23 and 24 years, from the French colony of Camargue also made several round-trips between southern France and elsewhere in the western Mediterranean. Other ringed flamingos came from Italy, Sardinia and Spain. Flamingos of seven and eight years old from the Sardinia colony c.300 km distant, were observed at SA after not having been reported for several years.

Common Shelduck *Tadorna tadorna*

SA and SS: on average 5,000–7,000 and c.3,000, respectively, in October–March 2012–14. SS normally supports the largest concentrations in Tunisia, with 1,000–12,500 (Amari & Azafzaf 2001) and occasionally more (e.g. 16,100 in winter 2009: Azafzaf *et al.* 2015) but in 2012–14 numbers were smaller than previous years and concentrations higher at SA than SS. In November 2012–late January 2013, hundreds died from botulism, both at SA and SS. The disease, which was present in the area since 2010 (H. Azafzaf pers. comm.), has probably depressed numbers, but was not recorded in 2013–14. Outside this period, small groups of a few dozen occur (SA: 60 moulting on 7 June 2014; 15 juveniles on 17 August 2013).

Marbled Teal *Marmaronetta angustirostris* VU
SA: 30 on 9 January 2005 and a single in June 2014. Also 20 at Soliman on 14 September 2003. The January record is unusual as this species mainly winters (in its thousands) in southern Tunisia. The two summer–autumn records concern birds presumably en route to the non-saline lakes of the Cap Bon peninsula, which support several hundred individuals. Nesting, in late May–June, has been recorded at SS in 1976, SA in 1987 and LT in 1988 (Isenmann *et al.* 2005).

Ferruginous Duck *Aythya nyroca* NT
SA: five on 17 August 2013. SS: two males with a group of Eurasian Coots *Fulica atra* on 29 March 2014. Breeds on the Cap Bon peninsula, where 12 juveniles with adults were observed in July 2003. The creation of lakes at this site has increased breeding since the 1990s. Some of those seen between July and October may breed in Eastern Europe (Isenmann *et al.* 2005).

White-headed Duck *Oxyura leucocephala* EN
SS: a single observation of 15 males and five females on 29 March 2014. Breeding sites include the lakes around Tunis before the 1960s and Cap Bon since the 1970s (Isenmann *et al.* 2005).

Egyptian Vulture *Neophron percnopterus* EN
Jebel Zaghoun: probably breeding. Two on 25 June 2011 and five on 22 June 2013. A migrant breeder found at all major rock faces in northern Tunisia (Isenmann *et al.* 2005).

Griffon Vulture *Gyps fulvus*
La Marsa: a juvenile on 11 May 2014. Possibly a wandering bird from Italy where the species was recently reintroduced (Azafzaf *et al.* 2015).

Osprey *Pandion haliaetus*
SA: one on the shore on 16 October 2013. Sea (Gammarth): one on 27 April 2014. Lake Ichkeul: one on 1 February 2004 and three on 22 January 2005. Observed on both passages in Tunisia. Countrywide up to ten wintered in 2013 and 2014 (Azafzaf *et al.* 2015).

Lesser Kestrel *Falco naumanni*
SA: six on 17–18 August 2013. MP: four on 13 October 2013. These birds could come from the Zaghoun aqueduct, where *c.*30 breeding pairs

were counted in May 2004, 2005 and 2013 (the number of pairs seems stable since 1975: Isenmann *et al.* 2005). A juvenile was offered for sale near the aqueduct in 2013. Jebel Zaghoun: five hunting grasshoppers on 22 June 2013.

Black-winged Stilt *Himantopus himantopus*
SA and SS: in scattered groups with larger numbers in winter (a few hundred) and in spring. Up to 800 at SA on 12 May 2013 and the same number at SS on 15 March 2014. Wintering numbers have increased in Tunisia (Azafzaf *et al.* 2015). Breeds in May–June at SA (20 juveniles on 21 June 2014) and MP (one juvenile on 15 June 2013). Outside these periods, variable numbers of tens or hundreds.

Pied Avocet *Recurvirostra avosetta*
SA: in groups of a few dozen, with larger numbers in winter (up to 1,500 on 16 March 2014). Wintering numbers have increased in Tunisia (Azafzaf *et al.* 2015). Breeds in June: 12 juveniles on 21 June 2014, *c.*10 nests near those of Little Tern *Sternula albifrons* on 29 June 2013 and two juveniles on 17 August 2013.

Little Ringed Plover *Charadrius dubius*
SA: singly or in small groups of max. 10 (on 17 August 2013). One winter record, at LT: one on 6 January 2013. Occasionally winters in Tunisia (Isenmann *et al.* 2005).

Common Ringed Plover *Charadrius hiaticula*
SA: singly or in small groups of up to ten. An exceptional record of 1,800 within a group of >30,000 shorebirds on 12–13 October 2013 (Fig. 5). Also 50 on 2 May 2014.

Kentish Plover *Charadrius alexandrinus*
SA: *c.*15,000 on 12–13 October 2013 and 3,000 on 2 November 2003. In October–November, sharp increase of several thousand birds, probably of European origin (Isenmann *et al.* 2005). Declines to a few tens or hundreds in winter. Breeds at SA: 600 with several juveniles on 29 June 2013. MP (beach): three juveniles on 15 June 2013.



Figure 3. Long-legged Buzzard *Buteo rufinus*, Ichkeul National Park, Bizerte Governorate, Tunisia, December 2008; a similar individual was present at La Marsa for several weeks in winter 2012–13 (B. Boedts)

Buse féroce *Buteo rufinus*, Parc National de l'Ichkeul, Gouvernorat de Bizerte, Tunisie, décembre 2008 ; un individu similaire était présent à La Marsa pendant plusieurs semaines durant l'hiver 2012–13 (B. Boedts)

Figure 4. Collared Pratincole / Glaréole à collier *Glaucopis pratensis*, Medjerda Plain, Tunisia, May 2013 (B. Boedts)





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Figure 5. Group of >30,000 shorebirds comprising Kentish Plovers *Charadrius alexandrinus* (c.50%), Little Stints *Calidris minuta* (30%), Dunlins *C. alpina* (15%) and Ringed Plovers *Charadrius hiaticula* (5%), Sebkhet Ariana, Tunisia, October 2013 (B. Boedts)

Groupe de >30.000 limicoles composé de Gravelots à collier interrompu *Charadrius alexandrinus* (50%), Bécasseaux minuts *Calidris minuta* (30%), Bécasseaux variables *C. alpina* (15%) et Grands Gravelots *Charadrius hiaticula* (5%), Sebkhet Ariana, Tunisie, octobre 2013 (B. Boedts)

Figure 6. Little Stints / Bécasseaux minuts *Calidris minuta*, Sebkhet Ariana, Tunisia, March 2013 (B. Boedts)

Figure 7. Little Tern *Sternula albifrons* at nest, Sebkhet Ariana, Tunisia, June 2013 (B. Boedts)

Sterne naine *Sternula albifrons* au nid, Sebkhet Ariana, Tunisie, juin 2013 (B. Boedts)

Figure 8. Little Tern *Sternula albifrons* offering a small fish to its partner, Sebkhet Ariana, Tunisia, June 2013 (B. Boedts)

Sterne naine *Sternula albifrons* offrant un petit poisson à son partenaire, Sebkhet Ariana, Tunisie, juin 2013 (B. Boedts)

Northern Lapwing *Vanellus vanellus*

Common in small groups in winter. One summer record: one at SA on 10 August 2003. Few records in April–September (Isenmann *et al.* 2005).

Sanderling *Calidris alba*

SA: groups of a few dozen or hundred. Up to 300 on 29 December 2012, 200 on 10 May 2014 and 40 in breeding plumage on 12 May 2013. Autumn passage normally commences in late July (Isenmann *et al.* 2005) but two in winter plumage were observed at SA on 7 June 2014.

Little Stint *Calidris minuta*

SA: max. 10,000 on 12–13 October 2013; autumn passage normally ends in September (Isenmann *et al.* 2005). Increasing numbers in spring with peak in May (750 on 20 March 2013; Fig. 6; 800 in breeding plumage on 27 April 2013; 6,000 on 2 May 2014). Smaller numbers elsewhere.

Curlew Sandpiper *Calidris ferruginea*

SA: spring passage commences in late March–April (two in early breeding plumage on 28 March 2005; 20 in breeding plumage on 19 April 2014) with a peak in early May (up to 6,000 on 10 May 2014), then rapidly decreases (1,000 on 12 May 2013; ten on 22 May 2005). Some present in winter. Autumn passage normally begins mid July (Isenmann *et al.* 2005), but 50 in breeding plumage were noted on 7 June 2014, and 25 in winter plumage on 21 June 2014. Elsewhere, less numerous.

Dunlin *Calidris alpina*

SA: generally more abundant on autumn passage, beginning in June with a peak in October (three on 29 June 2013; ten on 9 August 2003; 1,000 on 17 August 2013; 2,500 on 12–13 October 2013). Occasionally numerous in winter (2,000 on 2 November 2003; 300 on 6 November 2004; 500 on 26 December 2004). On spring passage, birds that winter in Gulf of Gabès take a more easterly migration route (Isenmann *et al.* 2005). However, 2,000 on 6 March 2004. Elsewhere, less numerous.

Broad-billed Sandpiper *Calidris falcinellus*

SA: one with Little Stints on 21 March 2005. Winters in small numbers in Tunisia, with several

records showing that the species occurs on spring passage (Isenmann *et al.* 2005).

Ruff *Calidris pugnax*

SA: autumn passage from August (ten, including some males still in breeding plumage, on 9 August 2003) to November. Post-breeding passage normally less marked in Tunisia (Isenmann *et al.* 2005) but in 2003 the species was particularly abundant (c.3,000 on 2 November 2003). In 2014, spring passage was noticeable (400 on 19 April 2014; 600, including some males in breeding plumage, on 2 May 2014). Elsewhere, in smaller numbers.

Eurasian Woodcock *Scolopax rusticola*

SA: one flushed on 29 December 2012. Few coastal records (Isenmann *et al.* 2005).

Black-tailed Godwit *Limosa limosa* NT

SA: observed on both passages (26 on 15 March 2014; five on 14 June 2014). Sometimes more numerous in winter, with 100 on 28 November 2003. SS: seven on 2 February 2013. Passage is more pronounced in spring than autumn; a few hundred winter in Tunisia (Isenmann *et al.* 2005).

Eurasian Curlew *Numenius arquata* NT

SA: sometimes present in small groups for several weeks in winter (13 on 5 October 2013; 18 on 18 January–15 February 2014; 50 on 29 February 2004). Elsewhere in smaller numbers. Considered a common winter visitor in Tunisia, arriving in July or August (Isenmann *et al.* 2005).

Spotted Redshank *Tringa erythropus*

SA: present in small numbers in winter (35 on 2 November 2013; two on 24 December 2013) and in larger groups in spring (200 on 16 March 2013). Not observed in 2003–05. Early autumn passage: five, including one in breeding plumage, on 1 June 2013 and ten, including several in breeding plumage, on 10 June 2014 (autumn passage normally from mid June/July: Isenmann *et al.* 2005). Max. 350, including some still in breeding plumage, on 28 June 2014.

Common Redshank *Tringa totanus*

SA: small numbers in winter. More numerous on autumn passage (mid June–September: Isenmann *et al.* 2005): one on 8 June 2013; 30 on 14 June

2014; 50 on 29 June 2013; 350 on 19–21 June 2014; 300 on 26 October 2013.

Marsh Sandpiper *Tringa stagnatilis*

SA: singly in winter and in groups of up to a few dozen in spring, occasionally with other shorebirds. Numbers of wintering birds rather small in Tunisia (Isenmann *et al.* 2005). More numerous in spring 2013 (30 with Spotted Redshanks on 16 March 2013; 120 on 20 March 2013; 20 on 6 April 2013). Elsewhere in smaller numbers.

Wood Sandpiper *Tringa glareola*

SA: singly in winter (only occasionally observed at this season in Tunisia; Isenmann *et al.* 2005). In groups on autumn passage, which commences in June (five on 21 June 2014; 20 on 14 July 2003; 35 on 17 August 2013). Just one record on spring passage (SS: ten on 27 April 2013).

Slender-billed Gull *Larus genei*

SA: large groups in April–May (500 on 13 April 2014; 5,000 on 20 April 2005; 400 on 12 May 2013). A failed breeding attempt was noted in June 2014 on an islet with *c.*70 abandoned nests. At SS, 300 pairs bred in 2009 (Azafaf *et al.* 2015). Few winter records. LT: one on 27 December 2013–13 January 2014. MP (beach): 30 on 9 February 2013.

Lesser Black-backed Gull *Larus fuscus*

SA: both *L. f. graellsii* and *L. f. intermedius* occur in winter, in mixed groups of several hundred birds; e.g. of a group of 800 adults on 17 February 2013, 58% were *L. f. graellsii* and 42% *L. f. intermedius* (despite *L. f. graellsii* being considered to be rather commoner in Morocco and western Algeria, and *L. f. intermedius* in Tunisia / eastern Algeria; Isenmann *et al.* 2005). Gammarth: *c.*1,000 on sea near the coast on 9 February 2013.

Caspian Tern *Hydroprogne caspia*

MP: up to 35 on 31 October 2004. More frequently observed in 2003–05 than in 2012–14, perhaps suggesting that the area is becoming less attractive to this species.

Lesser Crested Tern *Thalasseus bengalensis*

SA: on passage, singly or in larger groups near the coast in spring (e.g. ten on 18 May 2013; 50

on 19 May 2012), often with the next species. More frequently observed in 2012–14 than in 2003–05. Few observations in autumn, although post-breeding passage is said to be more marked (Isenmann *et al.* 2005).

Sandwich Tern *Thalasseus sandvicensis*

SA: increases in April–May, with up to 500 on 10 April 2004 and 28 May 2005. Spring passage is more marked (Isenmann *et al.* 2005). Many observations in winter of singles or groups of up to 20 (LT: 2 January 2014).

Common Tern *Sterna hirundo*

SA: singles on 14 July 2003 and 2 December 2012. LT: up to five on 12 April 2014. Spring passage normally occurs in late March–May and winter records are occasional (Isenmann *et al.* 2005).

Little Tern *Sternula albifrons*

SA: often in large numbers near the coast in spring, e.g. *c.*100 on 12 April 2004 and 150 on 19 April 2014. Approximately 50 nests along the road on 29 June 2013 (Fig. 7) with many birds flying from the sea to the sebkhet with small fish, which were apparently abundant in 2013 and could explain breeding at this unprotected site (Fig. 8). The following year, only a few were breeding at the same site. MP: *c.*500 on 15 June 2013 (probably breeding on islets) and 100 on 23 August 2003. The Tunisian breeding population is estimated at 700–800 pairs, but numbers fluctuate considerably annually (Isenmann *et al.* 2005).

Whiskered Tern *Chlidonias hybrida*

LT: singly in winter and in groups in spring. Not seen in 2003–05. Five foraging in flight on 3–5 December 2013; 20, including 12 in breeding plumage, on 25 March 2014 and 30 in breeding plumage on 11 April 2014. SA: 20 on 13 April 2014 and five on 19 April 2014. Wintering in small numbers is regular and spring passage is more marked. Has bred at SS with 15 pairs in 1991 (Isenmann *et al.* 2005).

Short-eared Owl *Asio flammeus*

SA: one flushed on 28 December 2013. A regular but uncommon winter visitor (Isenmann *et al.* 2005).

Common Swift *Apus apus*

One record in winter: four at MP on 4 January 2004. Just four previously published winter records, from the centre of the country (Isenmann *et al.* 2005, Azafaf *et al.* 2015).

Alpine Swift *Tachymarptis melba*

Along the highway to Hammam-Liff, a colony of *c.*20 pairs nesting in a quarry in May 2005 was still present in May 2013. This is within a semi-urban area, although the species has never been found breeding in towns in Tunisia, unlike in Morocco and Algeria (Isenmann *et al.* 2005).

European Bee-eater *Merops apiaster*

Large flocks on passage include >150 hunting over cereal fields and resting in thickets at La Marsa on 4 May 2013 (Fig. 9) and >200 flying over the sea near a cliff at Gammarth in the evenings in September 2012. Autumn passage is usually not well marked in Tunisia (Isenmann *et al.* 2005).

Barn Swallow *Hirundo rustica*

Winter records: six at SA on 28 December 2013 and five at SS on 6 December 2013. The few records in December refer to late migrants (Isenmann *et al.* 2005).

Red-throated Pipit *Anthus cervinus*

MP: one on 4 November 2012 (Fig. 10) and two on 28 December 2013. Also seen there by other observers (Selosse 2001). SA: in small groups of up to 15 in breeding plumage on 8 March 2014 (spring passage). Autumn passage is not well marked in Tunisia but wintering is regular (Isenmann *et al.* 2005).

Yellow Wagtail *Motacilla flava*

MP: breeders of *M. f. cinereocapilla* and ten juveniles (probably of the same subspecies) hunting insects in aquatic vegetation on 16 June 2013. Published breeding near the wetlands of Tunis concerned *M. f. iberiae*; there is just one record of a single *M. f. cinereocapilla* in June 1993, at Korba, Cap Bon (Isenmann *et al.* 2005).

Winter Wren *Troglodytes troglodytes*

La Marsa: two singing on 25 December 2013 and one on 17–23 March 2013. Also a single heard at

Ichkeul on 18 April 2004. No previous records around Tunis. Probably some birds from Europe winter in October–March (Isenmann *et al.* 2005).

Eurasian Reed Warbler *Acrocephalus scirpaceus*

La Marsa: a single observation of a singing individual in May 2005. No previous records around Tunis. A migrant breeder in northern Tunisia, but birds singing regularly in April–May should not always be taken for breeders (Isenmann *et al.* 2005).

Goldcrest *Regulus regulus*

La Marsa: one in pine trees on 10 February 2013. No previous records around Tunis. A regular winter visitor to the north, no doubt in small numbers varying annually (Isenmann *et al.* 2005).

Eurasian Jay *Garrulus glandarius*

La Marsa: single on 17 February 2013. Breeds in oak woods in the north-west, where resident; just two undocumented records away from this area probably refer to visitors from Europe (Isenmann *et al.* 2005).

Red Crossbill *Loxia curvirostra*

La Marsa: a single observation of a male and two females of *L. c. poliogyna* in pine trees on 27 January 2013. Breeds in Aleppo pine forests in the north-west, but few observations further east (Isenmann *et al.* 2005).

Discussion

Rare species for north-east Tunisia were recorded, such as Red-necked Grebe, Squacco Heron *Ardeola ralloides*, Griffon Vulture, Broad-billed Sandpiper, Eurasian Woodcock, Short-eared Owl, Goldcrest, Eurasian Jay and Red Crossbill. Comparison of observations made in 2003–05 with those in 2012–14 suggests a decrease for some species, e.g. Caspian Tern, Black Tern *Chlidonias niger*, Common Kingfisher *Alcedo atthis* and European Nightjar *Caprimulgus europaeus*. On the other hand, several species observed in 2012–14 were not previously seen, or only in smaller numbers, such as Purple Swamphen *Porphyrio porphyrio*, Spotted Redshank, Marsh Sandpiper, Ruddy Turnstone *Arenaria interpres*, Lesser Crested Tern and Whiskered Tern.

Accipitridae wintering in the area include Black-shouldered Kite *Elanus caeruleus*, Western



Figure 9. European Bee-eaters *Merops apiaster*, near the American Cemetery, La Marsa, Tunisia, May 2013 (B. Boedts)

Guèpiers d'Europe *Merops apiaster*, près du Cimetière américain, La Marsa, Tunisie, mai 2013 (B. Boedts)



Figure 10. Red-throated Pipit / Pipit à gorge rousse *Anthus cervinus*, Medjerda Plain, Tunisia, November 2012 (B. Boedts)

Marsh Harrier *Circus aeruginosus*, Eurasian Sparrowhawk *Accipiter nisus*, Long-legged Buzzard *Buteo rufinus* (suspected to breed near Zaghouan aqueduct) and to a lesser extent Osprey and Peregrine Falcon *Falco peregrinus* (race *calidus* observed in autumn/winter and race *brookei* in summer at Jebel Zaghouan). Other raptors, such as European Honey Buzzard *Pernis apivorus*, Black Kite *Milvus migrans* and Booted Eagle *Hieraetus pennatus* (the latter two suspected to

breed at the limit of their usual breeding ranges) were numerous on spring passage, while singles of Montagu's Harrier *Circus pygargus*, Eleonora's Falcon *Falco eleonora* and Red-footed Falcon *F. vespertinus* were occasionally recorded. Lesser Kestrel has a stable breeding colony in the area and was seen in autumn in small groups away from this site. Egyptian Vulture is also suspected to breed at Jebel Zaghouan.

Wetlands around Tunis, especially Sebkheth Ariana, are important wintering areas for waterbirds, especially for Great Cormorant *Phalacrocorax carbo*, Greater Flamingo and different species of Anatidae, of which the most abundant are Common Shelduck and Northern Shoveler *Anas clypeata*. Comparison with older data suggests a decrease for species such as Black-necked Grebe and Common Shelduck. In general, however, numbers remain high. In addition, cases of unusual wintering were recorded for White Stork, Common Swift and Barn Swallow. Occasional wintering was also noted for Little Ringed Plover and Common Tern.

Most shorebirds are present on both passages with several tens of thousands of individuals involved. Larger numbers on autumn passage were noted in 2003 for Ruff and in 2013–14 for Little Stint, Curlew Sandpiper and Spotted Redshank. Important gatherings of European Bee-eaters were noted on both passages.

In residential areas, several European passerines regularly winter, such as White Wagtail *Motacilla alba*, Winter Wren, European Robin *Erithacus rubecula*, Black Redstart *Phoenicurus ochurus*, Whinchat *Saxicola rubetra*, European Stonechat *S. rubicola*, Common Chiffchaff *Phylloscopus collybita* and Common Starling *Sturnus vulgaris*. On the steppes of the Medjerda Plain where Greater Short-toed Lark *Calandrella brachydactyla* and Yellow Wagtail *Motacilla flava cinereocapilla* breed, other species are regular winter visitors, e.g. Eurasian Skylark *Alauda arvensis*, Meadow Pipit *Anthus pratensis* and Red-throated Pipit, and passage migrants include Northern Wheatear *Oenanthe oenanthe* and Common Chaffinch *Fringilla coelebs* (*F. c. coelebs* at SA on 8–16 March 2014). At Zaghouan aqueduct, European Roller *Coracias garrulus* breeds.

In spring, some shorebirds breed at Sebkheth Ariana near the coast. At the same season, several species of Laridae and Sternidae also gather. There are few protected sites but some species regularly breed, including Black-winged Stilt, Eurasian Thick-knee *Burhinus oedicnemus*, Collared Pratincole *Glareola pratincola*, Kentish Plover and, more sporadically, Pied Avocet, Slender-billed Gull and Little Tern in 2013–14. In

wetlands at the Cap Bon peninsula, breeding was recorded in 2003 for White-headed Duck and Ferruginous Duck.

Being close to the city of Tunis, these endangered wetlands require protective measures to maintain the quality of the environment and bird populations they support. At Sebkheth Ariana, the negative impact of tourism development and hunting should be minimised by avoiding damage / disturbance to sensitive biotopes. Breeding sites also require protection. Given its high waterbird concentrations and the threats to this wetland, it is recommended to classify Sebkheth Ariana as an IBA. The same applies to the wetlands of the Medjerda Plain. At both sebkhet, measures are needed to limit pollution, in particular solid waste and water, which can lead to the occurrence of botulism, as observed in Common Shelducks in autumn/winter 2012–13.

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Appendix 1. Bird species observed around Tunis, Tunisia, 2003–14.

Annexe 1. Espèces d'oiseaux observées aux environs de Tunis, Tunisie, 2003–14.

Bird numbers recorded in the field / Nombre d'oiseaux recensés sur le terrain: maxima given in precise figures or as follows / maximum indiqué par chiffre précis ou comme suit : A = 2–10, B = 11–100, C = 101–1,000, D = 1,001–3,000, E = 3,001–6,000, F = 6,001–15,000, G = >15,000

X = Evidence of breeding observed / Preuve de reproduction obtenue

X̄ = Observed in 2003–05 / Observé en 2003–05

(X) = Observed near the study area / Observé à proximité de la zone d'étude

Sequence and taxonomy follow Isenmann *et al.* (2015) with a few amendments / L'ordre et la taxonomie suivent Isenmann *et al.* (2015) avec quelques amendements.

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PODICIPEDIDAE													
Little Grebe	<i>Tachybaptus ruficollis</i>	20	A	A	-	-	-	-	A	-	A	A	A
Great Crested Grebe	<i>Podiceps cristatus</i>	A	A	<u>50</u>	A	A	-	A	-	-	A	A	A
Red-necked Grebe	<i>Podiceps grisegena</i>	<u>3</u>	-	-	-	-	-	-	-	-	-	-	-
Black-necked Grebe	<i>Podiceps nigricollis</i>	B	B	850	A	-	-	-	-	-	-	A	B
PROCELLARIIDAE													
Cory's Shearwater	<i>Calonectris d. diomedea</i>	-	-	B	(C)	(C)	(C)	(C)	(C)	-	-	-	-
Yelkouan Shearwater	<i>Puffinus yelkouan</i>	-	-	(B)	-	-	-	-	-	-	-	-	-
PHALACROCORACIDAE													
Great Cormorant	<i>Phalacrocorax carbo</i>	C	C	C	A	-	-	-	-	-	A	C	C
ARDEIDAE													
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	-	-	-	-	-	1	-	A	15	-	-	-
Squacco Heron	<i>Ardeola ralloides</i>	-	-	-	(1)	-	-	-	(1)	-	-	-	-
Cattle Egret	<i>Bubulcus ibis</i>	C	B	B	B	B	B	B	B	B	C	C	C
Little Egret	<i>Egretta garzetta</i>	A	A	A	B	A	B	A	100	A	100	A	A
Great Egret	<i>Ardea alba</i>	4	A	A	-	-	-	-	-	-	A	A	A
Grey Heron	<i>Ardea cinerea</i>	A	A	A	A	B	-	-	-	-	20	A	20
Purple Heron	<i>Ardea purpurea</i>	<u>1</u>	-	2	-	-	-	-	-	-	-	-	-
CICONIDAE													
White Stork	<i>Ciconia ciconia</i>	3	A	A	100	A	A	A	A	A	-	-	5
THRESKIORNITHIDAE													
Glossy Ibis	<i>Plegadis falcinellus</i>	-	-	<u>15</u>	(17)	-	-	-	-	-	-	1	-
Eurasian Spoonbill	<i>Platalea leucorodia</i>	-	-	(B)	A	A	-	-	-	-	-	(50)	A
PHOENICOPTERIDAE													
Greater Flamingo	<i>Phoenicopterus roseus</i>	F	F	F	F	F	G	F	B	B	F	F	F
ANATIDAE													
Greylag Goose	<i>Anser anser</i>	(B)	(B)	-	-	-	-	-	-	-	-	-	-
Common Shelduck	<i>Tadorna tadorna</i>	F	F	F	B	A	B	B	B	B	F	F	F
Eurasian Wigeon	<i>Anas penelope</i>	A	A	A	-	-	-	-	-	-	A	A	600
Gadwall	<i>Anas strepera</i>	<u>20</u>	-	-	A	-	-	-	-	-	-	-	-
Common Teal	<i>Anas crecca</i>	800	600	B	-	-	-	-	-	-	-	B	B
Mallard	<i>Anas platyrhynchos</i>	D	C	<u>1500</u>	B	B	-	-	C	C	-	C	C

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Northern Pintail	<i>Anas acuta</i>	B	560	B	-	-	-	-	-	-	-	B	B
Garganey	<i>Anas querquedula</i>	-	-	3	-	-	-	-	-	-	-	-	-
Northern Shoveler	<i>Anas clypeata</i>	F	E	E	C	-	-	-	-	-	-	B	F
Marbled Teal	<i>Marmaronetta angustirostris</i>	<u>30</u>	A	-	-	-	1	-	-	(B)	A	-	-
Common Pochard	<i>Aythya ferina</i>	(B)	10	A	-	-	-	-	-	-	-	(B)	(B)
Ferruginous Duck	<i>Aythya nyroca</i>	-	-	A	-	-	-	(B)	5	-	-	-	-
Tufted Duck	<i>Aythya fuligula</i>	-	-	-	-	-	-	-	-	-	-	<u>50</u>	-
White-headed Duck	<i>Oxyura leucocephala</i>	-	-	20	-	-	-	(A)	-	-	-	-	-
ACCIPITRIDAE													
European Honey Buzzard	<i>Pernis apivorus</i>	-	-	-	-	20	-	-	-	-	-	-	-
Black-shouldered Kite	<i>Elanus caeruleus</i>	1	1	-	-	-	-	-	-	-	1	1	2
Black Kite	<i>Milvus migrans</i>	-	-	-	-	2	(A)	-	-	-	-	-	-
Egyptian Vulture	<i>Neophron percnopterus</i>	-	-	-	-	-	(5)	-	-	-	-	-	-
Griffon Vulture	<i>Gyps fulvus</i>	-	-	-	-	1	-	-	-	-	-	-	-
Short-toed Snake Eagle	<i>Circaetus gallicus</i>	-	-	-	-	-	-	-	(1)	-	-	-	-
Western Marsh Harrier	<i>Circus aeruginosus</i>	A	A	A	A	A	-	-	-	-	5	A	A
Montagu's Harrier	<i>Circus pygargus</i>	-	-	-	1	1	(A)	-	-	-	-	-	-
Eurasian Sparrowhawk	<i>Accipiter nisus</i>	1	-	-	-	1	-	-	-	1	-	-	-
Long-legged Buzzard	<i>Buteo rufinus</i>	1	1	1	-	1	-	-	-	-	-	1	-
Booted Eagle	<i>Hieraetus pennatus</i>	-	-	-	-	12	(A)	-	-	-	-	-	-
PANDIONIDAE													
Osprey	<i>Pandion haliaetus</i>	(3)	(1)	-	1	-	-	-	-	-	1	-	-
FALCONIDAE													
Lesser Kestrel	<i>Falco naumanni</i>	-	-	-	-	(60)	(5)	-	6	-	A	-	-
Common Kestrel	<i>Falco tinnunculus</i>	A	A	A	A	A	A	A	A	A	A	A	A
Red-footed Falcon	<i>Falco vespertinus</i>	-	-	-	-	(1)	-	-	-	-	-	-	-
Eleonora's Falcon	<i>Falco eleonora</i>	-	-	-	-	1	-	-	-	-	-	-	-
Peregrine Falcon	<i>Falco peregrinus</i>	-	-	-	-	-	(1)	-	-	-	1	-	(1)
PHASIANIDAE													
Barbary Partridge	<i>Alectoris barbara</i>	<u>6</u>	2	A	A	-	-	-	-	-	A	10	A
Common Quail	<i>Coturnix coturnix</i>	<u>1</u>	-	-	-	-	-	-	-	-	-	-	-
RALLIDAE													
Common Moorhen	<i>Gallinula chloropus</i>	A	25	A	A	A	A	A	A	A	A	A	A
Purple Swamphen	<i>Porphyrio porphyrio</i>	-	-	-	-	-	-	-	-	-	9	-	-
Eurasian Coot	<i>Fulica atra</i>	A	100	5000	C	A	150	-	<u>50</u>	-	-	-	A
GRUIDAE													
Common Crane	<i>Grus grus</i>	A	-	65	-	-	-	-	-	4	-	-	3
HEMATOPODIDAE													

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	-	-	<u>20</u>	-	-	-	-	<u>1</u>	-	-	<u>1</u>	-
RECURVIROSTRIDAE													
Black-winged Stilt	<i>Himantopus himantopus</i>	B	B	C	C	800	B	B	B	B	C	C	C
Pied Avocet	<i>Recurvirostra avocetta</i>	B	B	1500	B	B	B	B	B	B	C	C	C
BURHINIDAE													
Eurasian Thick-knee	<i>Burhinus oediconemus</i>	A	20	A	-	A	A	-	-	-	-	A	-
GLAREOLIDAE													
Collared Pratincole	<i>Glareola pratincola</i>	-	-	-	<u>50</u>	<u>200</u>	B	B	B	-	-	-	-
CHARADRIIDAE													
Little Ringed Plover	<i>Charadrius dubius</i>	1	-	A	A	-	-	-	10	A	A	-	-
Common Ringed Plover	<i>Charadrius hiaticula</i>	-	-	A	A	50	-	-	A	A	1800	-	-
Kentish Plover	<i>Charadrius alexandrinus</i>	C	C	C	C	B	C	C	C	D	F	E	C
Eurasian Golden Plover	<i>Pluvialis apricaria</i>	C	C	<u>B</u>	-	-	-	-	-	-	-	-	250
Grey Plover	<i>Pluvialis squatarola</i>	A	A	40	-	-	A	A	A	-	-	A	10
Northern Lapwing	<i>Vanellus vanellus</i>	<u>3</u>	-	-	-	-	-	-	<u>1</u>	-	-	A	<u>50</u>
SCOLOPACIDAE													
Sanderling	<i>Calidris alba</i>	B	B	C	B	C	A	-	-	-	B	B	300
Little Stint	<i>Calidris minuta</i>	B	B	C	C	E	-	-	1	C	F	F	D
Curlew Sandpiper	<i>Calidris ferruginea</i>	-	-	<u>A</u>	B	E	B	B	<u>1</u>	A	A	A	A
Dunlin	<i>Calidris alpina</i>	-	-	<u>D</u>	A	A	A	-	C	C	D	<u>D</u>	<u>C</u>
Broad-billed Sandpiper	<i>Calidris falcinellus</i>	-	-	<u>1</u>	-	-	-	-	-	-	-	-	-
Ruff	<i>Calidris pugnax</i>	-	-	B	C	C	-	-	<u>B</u>	B	B	<u>D</u>	C
Eurasian Woodcock	<i>Scolopax rusticola</i>	-	-	-	-	-	-	-	-	-	-	-	1
Common Snipe	<i>Gallinago gallinago</i>	A	A	A	-	-	-	-	-	-	-	-	5
Black-tailed Godwit	<i>Limosa limosa</i>	-	A	B	-	-	A	-	-	-	-	<u>100</u>	-
Bar-tailed Godwit	<i>Limosa lapponica</i>	-	-	-	-	-	50	-	-	-	-	<u>A</u>	-
Eurasian Curlew	<i>Numenius arquata</i>	B	<u>50</u>	B	-	-	-	-	<u>1</u>	-	B	B	B
Spotted Redshank	<i>Tringa erythropus</i>	-	B	200	B	B	350	-	-	-	-	B	B
Common Redshank	<i>Tringa totanus</i>	A	A	A	-	-	350	1	A	A	300	B	A
Marsh Sandpiper	<i>Tringa stagnatilis</i>	-	-	120	B	-	-	-	-	-	-	A	A
Common Greenshank	<i>Tringa nebularia</i>	A	A	20	20	-	-	A	A	A	A	A	A
Green Sandpiper	<i>Tringa ochropus</i>	A	A	A	A	-	-	-	-	-	3	5	A
Wood Sandpiper	<i>Tringa glareola</i>	-	1	-	A	-	5	<u>20</u>	35	-	-	1	1
Common Sandpiper	<i>Actitis hypoleucos</i>	1	-	-	1	1	A	-	3	1	1	1	1
Ruddy Turnstone	<i>Arenaria interpres</i>	A	A	20	<u>A</u>	1	1	-	-	-	-	A	A
LARIDAE													
Mediterranean Gull	<i>Larus melanocephalus</i>	-	-	1	1	-	-	-	-	-	-	-	-
Common Black-headed Gull	<i>Larus ridibundus</i>	D	D	C	B	A	A	A	A	B	D	D	D

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Slender-billed Gull	<i>Larus genei</i>	1	B	C	F	C	B	A	-	-	-	-	1
Audouin's Gull	<i>Larus audouinii</i>	-	-	-	-	-	-	-	1	-	-	-	-
Lesser Black-backed Gull	<i>Larus fuscus</i>	C	D	C	-	-	-	-	A	B	B	B	B
Yellow-legged Gull	<i>Larus michahellis</i>	B	B	B	B	A	A	A	A	B	B	B	B
STERNIDAE													
Gull-billed Tern	<i>Gelochelidon nilotica</i>	-	-	-	6	A	A	1	-	-	-	-	-
Caspian Tern	<i>Hydroprogne caspia</i>	-	-	A	A	-	A	A	A	A	35	-	-
Lesser Crested Tern	<i>Thalasseus bengalensis</i>	-	-	-	-	50	A	-	-	-	1	A	-
Sandwich Tern	<i>Thalasseus sandvicensis</i>	20	-	B	500	500	B	A	-	-	A	A	B
Common Tern	<i>Sterna hirundo</i>	-	-	-	5	-	-	1	-	-	-	-	1
Little Tern	<i>Sternula albifrons</i>	-	-	-	150	C	500	B	B	-	-	-	-
Black Tern	<i>Chlidonias niger</i>	-	-	-	500	A	-	-	C	-	-	-	-
Whiskered Tern	<i>Chlidonias hybrida</i>	A	-	A	30	-	-	-	-	-	-	-	A
COLUMBIDAE													
Rock Dove	<i>Columbia livia</i>	A	A	A	A	A	40	A	A	A	A	A	A
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	A	A	A	A	A	A	A	A	A	A	A	A
European Turtle Dove	<i>Streptopelia turtur</i>	-	-	-	-	A	A	A	-	-	-	-	-
Laughing Dove	<i>Streptopelia senegalensis</i>	A	A	A	A	A	A	A	A	A	A	A	A
STRIGIDAE													
Short-eared Owl	<i>Asio flammeus</i>	-	-	-	-	-	-	-	-	-	-	-	1
Little Owl	<i>Athene noctua</i>	1	1	1	1	1	1	1	1	1	1	1	1
CAPRIMULGIDAE													
European Nightjar	<i>Caprimulgus europaeus</i>	-	-	-	-	-	-	-	1	-	-	-	-
APODIDAE													
Common Swift	<i>Apus apus</i>	4	-	-	C	C	C	C	C	C	-	-	-
Alpine Swift	<i>Tachymarptis melba</i>	-	-	-	-	(B)	-	-	-	-	-	-	-
ALCEDINIDAE													
Common Kingfisher	<i>Alcedo atthis</i>	1	-	-	-	-	-	-	-	-	-	-	1
MEROPIIDAE													
European Bee-eater	<i>Merops apiaster</i>	-	-	-	-	150	-	-	A	200	-	-	-
CORACIIDAE													
European Roller	<i>Coracias garrulus</i>	-	-	-	-	(10)	(A)	-	-	-	-	-	-
UPUDIDAE													
Hoopoe	<i>Upupa epops</i>	-	A	A	A	A	A	A	A	A	A	A	A
ALAUDIDAE													
Greater Short-toed Lark	<i>Calandrella brachydactyla</i>	-	-	-	10	A	-	-	-	-	-	-	-
Lesser Short-toed Lark	<i>Calandrella rufescens</i>	-	-	-	-	-	-	-	-	-	1	-	-
Crested Lark	<i>Galerida cristata</i>	A	A	A	A	A	A	A	A	A	A	A	20

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Thekla Lark	<i>Galerida theklae</i>	-	-	-	-	-	(20)	-	-	-	-	-	-
Eurasian Skylark	<i>Alauda arvensis</i>	A	A	A	-	-	-	-	-	-	-	A	10
HIRUNDINIDAE													
Common Sand Martin	<i>Riparia riparia</i>	-	-	-	-	<u>100</u>	-	-	-	-	-	-	-
Eurasian Crag Martin	<i>Ptyonoprogne rupestris</i>	(A)	-	-	-	-	-	-	-	-	-	-	(A)
Barn Swallow	<i>Hirundo rustica</i>	-	A	A	200	A	A	A	A	A	A	-	6
Red-rumped Swallow	<i>Hirundo daurica</i>	-	-	(A)	-	-	-	-	(A)	-	-	-	-
Common House Martin	<i>Delichon urbicum</i>	-	A	A	A	A	A	A	A	A	-	-	-
MOTACILLIDAE													
Tree Pipit	<i>Anthus trivialis</i>	-	-	-	-	1	-	-	-	-	-	-	-
Meadow Pipit	<i>Anthus pratensis</i>	A	A	-	-	-	-	-	-	-	-	<u>20</u>	A
Red-throated Pipit	<i>Anthus cervinus</i>	A	A	15	-	-	-	-	-	-	-	A	A
Yellow Wagtail	<i>Motacilla flava</i>	-	-	20	A	-	A	-	-	-	-	-	-
White Wagtail	<i>Motacilla alba</i>	A	A	A	-	-	-	-	-	A	A	A	A
PYCNONOTIDAE													
Common Bulbul	<i>Pycnonotus barbatus</i>	A	A	A	A	A	A	A	A	A	A	A	A
TROGLODYTIDAE													
Winter Wren	<i>Troglodytes troglodytes</i>	1	1	1	(1)	-	-	-	-	-	-	-	2
TURDIDAE													
Rufous-tailed Scrub Robin	<i>Cercotrichas galactotes</i>	-	-	-	(1)	-	-	-	-	-	-	-	-
European Robin	<i>Erithacus rubecula</i>	1	1	1	-	-	-	-	-	-	1	1	1
Black Redstart	<i>Phoenicurus ochuros</i>	5	A	-	-	-	-	-	-	-	A	A	A
Common Redstart	<i>Phoenicurus phoenicurus</i>	-	-	-	(1)	-	-	-	-	-	-	-	-
Moussier's Redstart	<i>Phoenicurus moussieri</i>	-	-	-	(1)	(1)	(1)	-	-	-	-	-	-
Whinchat	<i>Saxicola rubetra</i>	-	A	5	A	A	-	-	-	-	A	A	-
European Stonechat	<i>Saxicola rubicola</i>	A	A	A	-	-	-	-	-	-	-	4	A
Northern Wheatear	<i>Oenanthe oenanthe</i>	-	-	A	10	A	-	-	-	-	-	-	-
Black-eared Wheatear	<i>Oenanthe hispanica</i>	-	-	-	-	-	(1)	-	-	-	-	-	-
Black Wheatear	<i>Oenanthe leucura</i>	-	-	-	-	-	(5)	-	-	-	-	-	-
Blue Rock Thrush	<i>Monticola solitarius</i>	-	-	-	-	-	(2)	-	-	-	A	-	-
Eurasian Blackbird	<i>Turdus merula</i>	A	A	A	A	A	A	A	A	A	A	A	A
SYLVIIDAE													
Zitting Cisticola	<i>Cisticola juncidis</i>	A	A	A	A	A	A	A	A	A	A	A	A
Eurasian Reed Warbler	<i>Acrocephalus scirpaceus</i>	-	-	-	-	1	-	-	-	-	-	-	-
Western Olivaceous Warbler	<i>Hippolais opaca</i>	-	-	-	-	-	1	-	-	-	-	-	-
Sardinian Warbler	<i>Sylvia melanocephala</i>	A	A	A	A	A	A	A	A	A	A	A	A
Western Orphean Warbler	<i>Sylvia hortensis</i>	-	-	-	-	1	1	-	-	-	-	-	-
Spectacled Warbler	<i>Sylvia conspicillata</i>	-	-	-	-	-	-	-	-	-	-	-	1

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Subalpine Warbler	<i>Sylvia cantillans</i>	-	-	(1)	-	-	-	-	-	-	-	-	-
Blackcap	<i>Sylvia atricapilla</i>	-	A	A	4	-	-	-	-	-	-	-	-
Western Bonelli's Warbler	<i>Phylloscopus bonelli</i>	-	-	-	-	-	(1)	-	-	-	-	-	-
Common Chiffchaff	<i>Phylloscopus collybita</i>	A	A	-	-	-	-	-	-	-	A	A	20
Goldcrest	<i>Regulus regulus</i>	-	1	-	-	-	-	-	-	-	-	-	-
MUSCICAPIDAE													
Spotted Flycatcher	<i>Muscicapa striata</i>	-	-	-	-	10	A	A	A	A	A	-	-
European Pied Flycatcher	<i>Ficedula hypoleuca</i>	-	-	-	(1)	-	-	-	-	-	-	-	-
PARIDAE													
African Blue Tit	<i>Cyanistes teneriffae</i>	1	1	1	1	(1)	1	1	1	1	1	1	1
Great Tit	<i>Parus major</i>	1	1	-	-	-	-	-	-	-	-	1	1
LANIIDAE													
Black-crowned Tchagra	<i>Tchagra senegalus</i>	-	-	-	-	-	-	-	-	(1)	-	-	-
Southern Grey Shrike	<i>Lanius meridionalis</i>	1	1	A	A	A	A	1	1	1	1	1	1
Woodchat Shrike	<i>Lanius senator</i>	-	-	A	A	A	A	-	-	-	-	-	-
CORVIDAE													
Eurasian Jay	<i>Garrulus glandarius</i>	-	1	-	-	-	-	-	-	-	-	-	-
Common Raven	<i>Corvus corax</i>	-	-	-	-	-	(5)	-	-	-	-	-	-
STURNIDAE													
Common Starling	<i>Sturnus vulgaris</i>	D	B	-	-	-	-	-	-	B	C	D	D
Spotless Starling	<i>Sturnus unicolor</i>	A	A	A	A	A	A	B	B	A	A	A	A
PASSERIDAE													
Spanish Sparrow	<i>Passer hispaniolensis</i>	C	A	A	A	A	A	A	A	A	A	A	C
Eurasian Tree Sparrow	<i>Passer montanus</i>	-	-	-	-	-	-	-	-	-	(1)	-	-
Rock Sparrow	<i>Petronia petronia</i>	-	-	-	-	-	(8)	-	-	-	-	-	-
FRINGILLIDAE													
Common Chaffinch	<i>Fringilla coelebs</i>	A	A	3	A	A	A	A	A	A	A	A	A
European Greenfinch	<i>Carduelis chloris</i>	50	A	A	A	A	A	A	A	A	A	A	A
European Goldfinch	<i>Carduelis carduelis</i>	-	-	-	-	-	-	-	-	-	(1)	-	-
Common Linnet	<i>Carduelis cannabina</i>	5	-	A	-	-	-	-	-	-	A	-	-
European Serin	<i>Serinus serinus</i>	B	A	A	A	A	A	A	A	A	A	A	A
Red Crossbill	<i>Loxia curvirostra</i>	3	-	-	-	-	-	-	-	-	-	-	-
EMBERIZIDAE													
Corn Bunting	<i>Emberiza calandra</i>	-	-	A	A	A	-	-	-	-	-	-	-

Appendix 2. Details of ringed Greater Flamingos *Phoenicopterus roseus* observed at Sebkheth Ariana (SA) and Sejoumi (SS).

Annexe 2. Historique de vie des Flamants roses *Phoenicopterus roseus* bagués vus aux Sebkheth Ariana (SA) et Sejoumi (SS).

Site / Lieu de lecture	Date / Date de lecture	Ring number / Numéro de la bague	Provenance / Origine	Year of ringing / Année de baguage	Number of records / Nombre de lectures	Previous records / Lectures précédentes
SA	29 Jan 2005	FCAD	France - Camargue (Etang du Fangassier) (1)	2003	1	-
	29 Jan 2005	FDFC		2003	1	-
	28 Feb 2005	FDFC		2003	2	Tunisia: Ariana (Jan 05)
	5 Mar 2005	FDZH		2003	6	Tunisia: Nabeul (Feb-Jul 04)
	5 Mar 2005	FFNV		2003	1	-
	5 Mar 2005	FDTV		2003	3	Tunisia: Nabeul (May-Jul 04)
	14 Jun 2014	BHXF		1991	37	France (Aug 91-Jan 98), Spain (Jun 98), France (Aug 00-Oct 01), Spain (May 02-Mar 04), Sardinia (May 05-Jun 05), France (Apr 06-May 10), Algeria (May 11-Jul 11), France (May 13: dead?)
	14 Jun 2014	BAAX		1990	29	France (Aug 90), Sardinia (Dec 91), France (May 95-Apr 02), Spain (Jun 04), France (Feb 05-May 06)
	14 Jun 2014	JXUP		2013	3	Sardinia (Jul 13)
	29 Jan 2005	IZS	Italy (Saline di Comacchio) (2)	2002	13	Italy (Jul 02-Dec 03), Corsica (Jan 04), France (Jul 04), Italy (Aug 04), Corsica (Nov. 04)
	5 Mar 2005	IABN		2002	3	Spain (Apr 03), Italy (Dec 03)
	14 Jun 2014	MSNZ	Sardinia (Stagio di Macchiareddu) (2)	2006	3	Tunisia : Nabeul (Sep 06), Sfax (Mar 07)
	14 Jun 2014	MZJF		2007	5	Sardinia (Aug 07), Tunisia : Sejoumi (2x Nov 07, Aug 09)
	29 Jan 2005	1/FLB	Spain (Laguna de Fuente de Piedra) (1)	2003	1	-
	5 Mar 2005	1/FZN		2003	1	-
	5 Mar 2005	1/CHC		2002	1	-
	5 Mar 2005	1/BNJ		2002	1	-
	5 Mar 2005	1/FDF		2002	1	-
	15 Mar 2014	2/DPD		2013	Na	Na
15 Mar 2014	P/3J	Spain (Marismas del Odiel) (1)	2013	Na	Na	
SS	15 Mar 2014	JZBP	France - Camargue (Etang du Fangassier) (1)	2013	1	-
	15 Mar 2014	KAAL		2013	2	Tunisia : Nabeul (Oct. 13)
	15 Mar 2014	WDTJ	Sardinia (Stagio di Macchiareddu) (2)	2013	1	-
	15 Mar 2014	WDPT		2013	2	Sardinia (Sep. 13)

Data received from / Données reçues de: (1) Station biologique de la Tour du Valat, France; (2) Istituto Superiore per la Protezione e la Ricerca Ambientale, Italia.
Na = Not available / non disponible.